

From: Howard, Leslie Ann CIV USN BRAC PMO SAN CA (USA)
[leslie.howard@navy.mil]
Sent: Monday, June 22, 2020 5:07 PM
To: Stoick, Paul T CIV USN (USA) [paul.stoick@navy.mil]
Subject: RE: E-2 RACR RTCs
Attachments: RTC – D_RACR_Parcel E-2_r1F.pdf

Hi

That's odd...why don't they tell me this? They can still respond to Draft Final comments...not like they aren't allowed. Jeff White is the main Water Board person for E-2. Their comments aren't due for a few weeks.

The entire redlined DF is located here on the server. Some files are HUGE.

W:\West\PriorBRAC\HPNS\Environmental\CERCLA\Parcel E-2\RA Phase 2 Shoreline Revetment\RACR Phase II\Draft Final

Leslie

Leslie A. Howard, CHMM
Remedial Project Manager
Navy BRAC PMO West
33000 Nixie Way
Bldg 50, 2nd Floor
San Diego CA 92147
Desk Phone: 619-524-5903
Main Office Phone: 619-524-5096

From: Stoick, Paul T CIV USN (USA) <paul.stoick@navy.mil>
Sent: Monday, June 22, 2020 3:35 PM
To: Howard, Leslie Ann CIV USN BRAC PMO SAN CA (USA) <leslie.howard@navy.mil>
Subject: E-2 RACR RTCs

Leslie,

When you have a chance, can you forward the Parcel E-2 RACR RTCs. Thomas said the waterboard was asking if their comments were being addressed and didn't want it finalized until they were. I didn't think the water board had major comments – but I'll take a quick look.

Thanks!

V/r,
Paul Stoick, P.E.
Environmental Engineer
Lead Remedial Project Manager - Hunters Point
☎ 619-524-6041 | paul.stoick@navy.mil

NAVFAC Southwest - Navy BRAC PMO West
33000 Nixie Way
Bldg 50, 2nd Floor
San Diego, CA 92147

<https://bracpmo.navy.mil/> | <http://www.navfac.navy.mil/go/erb>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Nina Bacey, California Department of Toxic Substances Control, comments dated March 5, 2020

Comment	Response
<p>1. Section 3.3.2.2, Excavation of Offshore Soil and Sediment from Parcel F – This section refers to as-built Drawing C2 in Appendix C. Drawing C2 is not complete. A portion of the Panhandle Area appears to be missing. Please include the excavated cut to the tidal wetlands area in the drawing.</p>	<p>As described in Section 3.3.1 of the Design Basis Report (DBR), the removal of offshore sediment within 6 feet of the shoreline revetment structure was required to ensure its integrity during future remediation activities in Parcel F. As-built Drawing C2 in Appendix C of the RACR correctly depicts the limits of the completed shoreline revetment which does end prior to transitioning into the tidal wetlands. Similarly, the “wedge” of sediment cut from Parcel F (correctly labeled as a 1.0’ cut) ends at the same location.</p> <p>No changes to as-built Drawing C2 are recommended.</p>
<p>2. Section 3.2.10 Site Grading to Final Subgrade – Please indicate in this Section how many Low-Level Radiological Objects (LLROs) were identified and removed during the site grading (17?).</p>	<p>Section 3.2.10 has been revised to indicate that 18 LLRO’s were identified and removed during the site grading. A new sentence has been inserted into this section to state; “18 LLRO’s were identified and removed during this surface screening process.”</p>
<p>3. Section 3.2.13 Construction of Foundation Soil Layer –</p> <ul style="list-style-type: none"> a. Please indicate in this section if the soil that was used for the foundation soil layer was screened for Chemicals of Concern (COCs) in addition to Radionuclides of Concern (ROCs). b. Please indicate in this section if the foundation layer was installed within the freshwater pond and wetland area. c. Clarification is needed for the last paragraph, #1. Is the section of shoreline between the landfill and the geogrid anchor depicted in Drawing C3? d. Is the geogrid anchor the temporary soil anchor as depicted on Drawing C3? Please indicate where the design elevations have not yet been met for the three areas specified. 	<ul style="list-style-type: none"> a. All material generated on site during excavation to the design subgrade was analyzed for ROCs, while additional chemical characterization was only required 1) within the design wetlands area because these areas will not be covered with a protective liner, and 2) within areas designated within the DBR to remove additional hot spots. Appendix AA presents the analytical data and validation reports. All import sources used to complete the foundation soil layer were analyzed for both site COCs and former potential ROCs, the results of which can be found in Appendix W. b. For clarity, the following paragraph will be amended to Section 3.2.13: “To construct the foundation layer within the freshwater and tidal wetlands area, approximately 4,620 cy of clean fill from the “Bernard Pile” in Brisbane CA was imported to the site as the soil bridge layer in accordance with DBR design drawing C19 (ERRG, 2014). Fill within the wetland areas was placed utilizing grade staking marked in the field to exactly 1 foot above the constructed subgrade surface shown on As-built Drawing C5 (Appendix C). The sampling and analysis plan (Work Plan Appendix B; CB&I, 2016) provides analytical requirements and procedures for clean fill import verifications. The approved import material transmittal package

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Nina Bacey, California Department of Toxic Substances Control, comments dated March 5, 2020

	<p>was presented to the Navy under Construction Submittal #011 (Appendix P).”</p> <p>c. As-built Drawing C8 depicts the foundation restoration volumes along with a color scheme representation of the areas described in Section 3.2.13. A citation will be added to this section as appropriate to bring the reader’s attention to the correct figure.</p> <p>d. Correct. The approximate 2-foot thick layer of compacted soil placed directly over the geogrid layer serves as an “anchor” to hold the geogrid layer in place during construction of the shoreline revetment. This area was constructed to the design elevation as specified; however, as described in Section 3.2.13, a small section of shoreline ‘between’ the landfill and the geogrid anchor point did not meet the foundation design elevation. As noted above, please see as-built Drawing C8 for the representation of this area.</p>
<p>4. Section 3.2.15 Installation of Monitoring and Extraction Wells and Piezometers – Indicates in paragraph six that, <i>“To properly anchor the previously installed geogrid, the Navy required fill material to be placed over the entire upland footprint of geogrid to the finished grade of the final cover. Per the DBR, it is understood that this material is only intended to be temporary and will be removed during Phase III of the RA to allow for installation of the final protective liners.”</i> Clarification is needed regarding this temporary material.</p> <p>a. Was it screened for COCs in addition to ROCs and if so, why does it need to be removed prior to installing the final layer of material?</p> <p>b. Please indicate in this section the depth of this material.</p>	<p>a. The compacted soil layer placed above the geogrid liner met the same placement criteria as all other compacted foundation material on site. It is referred to as a “temporary layer” because the contractor who installs the final landfill cover system (HDPE geomembrane, drainage Geocomposite, etc.) will need to remove this material to an elevation approximately 6-inches above the in-place geogrid in order to correctly anchor the cover system to the seawall foundation as specified within the DBR.</p> <p>b. The depth of this material varies as the finished grade slopes upward from the completed seawall to the upland anchor point; however, the geogrid was installed at a consistent elevation approximately 6.5 ft above msl. Therefore, it is anticipated the next phase contractor will need to dig out this soil layer down to a depth of approximately 7 ft above msl, leaving a minimum 6” soil layer between the geogrid and the cover materials they will be tasked with installing.</p>
<p>5. Section 3.4.1 Soil and Debris – It’s unclear how much soil was not cleared chemically and disposed of as hazardous waste and where that waste was transported to. Though Section 7.1 does reference some material disposal. Please clarify.</p>	<p>For clarity, additional language has been added to Section 3.4.1 to better describe the final disposition of soil and debris generated on site. In addition, the following paragraph has been added to the end of Section 3.4.1:</p> <p>“A detailed summary of all material transported off-site for disposal is presented in Appendix X, which in summary includes approximately 2,310 tons of Resource Conservation and Recovery Act hazardous material;</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Nina Bacey, California Department of Toxic Substances Control, comments dated March 5, 2020

	approximately 62.43 tons of non-hazardous construction debris; 774 cy of non-hazardous soil; and 98,380 pounds of recycled steel sheet pile.”
6. Section 4.7 Radiological Screening of Excavated Soil – Indicates “... 22 of the 42 LLROs were identified and removed during screening of the soil on the RSY pads.” Please explain what happened to the other 20 LLROs?	Section 4.7 only discusses the radiological screening of excavated soil that took place on RSY pads. Of the 42 total LLROs that were found during the project, 21 of them were found on the RSY pads. The origins of the other 21 LLROs that were identified during the project are described in Section 4.4 (18 LLROs during radiological surveys of the SUs), and in Section 3.2.12 (3 LLROs during waste consolidation survey activities). No changes were made to the text in Section 4.7; however, Section 7.1, “Conclusions,” has been revised to provide a summary total of all LLROs identified and recovered during the project.
7. Section 7.0 Conclusions and Ongoing Activities – Indicates that the Parcel E-2 remedial action will consist of three phases. If this has been recently changed to four phases, please indicate that here (first paragraph and in Section 7.2).	As described in Section 1.0, the Parcel E-2 remedy is being implemented in phases due to the large scope of required actions as detailed in the Final DBR (ERRG, 2014). Specifically, Section 3, Page 3-2 and 3-3 of the DBR list the RA construction activities to be completed in three separate phases. For clarity, the following statement will be amended to Section 7.0, “Conclusions and Ongoing Activities”: “As mentioned in Section 1.0, the Parcel E-2 remedy is being implemented in three separate phases because of the large scope of required actions as detailed in the DBR (ERRG, 2014). However, as necessary for scheduling and contracting purposes, a few of the final tasks originally designated as Phase III may be separated into a new fourth phase of construction. The task order described within this completion report was the second phase, which included shoreline revetment; site grading and consolidation of excavated soil, sediment, and debris; and upland slurry wall installation. No further action is required for these RA components; however, the Parcel E-2 RA will continue in the subsequent phases until the full scope of the DBR has been implemented. When the three all phases of the Parcel E-2 RA are completed, requirements of the ROD will be met and documented in the third and final phase RACR”
8. Section 7.1 Conclusions – This last bullet indicates 42 LLROs were identified and recovered during the remediation. The text of the report indicates 17 were removed during the final radiological characterization surface survey and 22 removed during the RSY pad soil screening. Please	Section 3.2.12 (“On-site Consolidation of Radiologically-Cleared Soil, Sediment, and Debris”), the fourth paragraph, discusses the remaining 3 LLROs that were identified and removed during waste consolidation survey activities.

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Nina Bacey, California Department of Toxic Substances Control, comments dated March 5, 2020

indicate in the text of the report where the other 3 LLROs were located and how handled.	<p>For clarity, Section 7.14, “Conclusions,” has been revised with additional bullets to read as follows:</p> <ul style="list-style-type: none"> • “42 LLROs were identified and recovered during the project <ul style="list-style-type: none"> – 21 LLROs were found on RSY pads – 18 LLROs were found during radiological surveys of the SUs – 3 LLROs were found during waste consolidation survey activities”
9. Appendix B Figure C13 – It is difficult to see the hatched area as indicated in the Note. Please revise and/or label to clarify this area of concern.	Figure C13 (Appendix B) has been revised to include a legend defining the various hatching patterns used.
10. Appendix C – as-build Drawing C2 – In the legend, the nearshore slurry wall and the site boundary are identified with a similar broken line. DTSC recommends changing one so that it is clear where the slurry is located.	Drawing C2 (Appendix C) has been revised to clearly differentiate the two separate line types.
11. Appendix Y – Water Quality Monitoring Data – This appendix appears to be missing the general water quality data and monitoring logs as indicated in Section 3.1.8. Please include.	The Water Quality Monitoring Data logs have been added to Appendix Y.

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Marikka Hughes, California Department of Toxic Substances Control, Geological Services Unit, comments dated February 28, 2020

Comment	Response
<p>1. Section 3.2.1 Shoreline Revetment</p> <p>This section states that details of the shoreline revetment construction are described in the “following subsections,” but there are no subsections associated with Section 3.2.1 and the remaining sections in Section 3.2 also refer to the installation of the upland slurry wall and wells and piezometers. It is believed that the statement in Section 3.2.1 is meant to refer to Sections 3.2.2 through 3.2.13. Please review the document and revise as appropriate.</p>	<p>This section has been revised to read as follows:</p> <p>“The shoreline revetment was constructed in accordance with the Work Plan (CB&I, 2016) and as described in Sections 3.2.2 through 3.2.9.”</p>
<p>2. Section 3.2.10.1 Excavation to Construct Future Wetlands</p> <p>The RACR discusses that confirmation samples were collected and exceeded in some of the sample grid locations, but the data are not presented in a table nor is a figure provided where these samples were collected. Please provide a table in the RACR that includes the confirmation sample data and also provide a figure that indicates where the confirmation samples were collected.</p>	<p>The Tidal and Freshwater Wetlands confirmation tabulated data was presented in Appendix X. However, for better clarity, the RACR has been revised to move the discussion, tables and figures associated with the Tidal Wetland and Freshwater Wetland confirmation sampling forward to the main text.</p> <p>Specifically, several lines of text have been added to Section 3.2.10.1, introducing new Figures 5 through 8 which show the radiological screening and chemical sample locations summarizing the analytical strategy for the freshwater and tidal wetlands, as well as new Tables 5 through 7 which summarize the progression of the chemical confirmation testing results.</p>
<p>3. Section 3.2.12 On-site Consolidation of Radiologically-Cleared Soil, Sediment, and Debris</p> <p>The text indicates that the materials generated at the site for this remedial action exceeded the volume planned in the <i>Final Design Basis Report, Parcel E-2, Hunters Point Naval Shipyard, San Francisco, California</i> (ERRG, 2014) and a reference to the changes made to the site plan are presented in Appendix C. As the figures provided in the main portion of the RACR include what the pre-existing conditions were at the site, please provide a figure of the site with the different areas post-construction labeled in the main portion of the RACR.</p>	<p>For continuity, a version of the Foundation Grading As-built (Drawing C6 [Appendix C]) will be copied forward to the main portion of the RACR as Figure 9.</p>
<p>4. Section 3.2.14.5 Excavation and Installation and Section 4.2 Upland Slurry Wall and French Drain</p> <p>Section 3.2.14.5 indicates that an obstruction was noted during the excavation to install the slurry wall, and later in Section 4.2, it is stated that the obstruction is believed to be serpentinite rock. Please provide any</p>	<p>There are no photographs available of the subsurface obstruction as the cement-bentonite slurry used to maintain the trench excavation in an “open” condition was always required to be kept within two feet of the working surface. Reference to the historical documentation used to deduce</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Marikka Hughes, California Department of Toxic Substances Control, Geological Services Unit, comments dated February 28, 2020

photographs of the obstruction available and references to the documents used to determine that this obstruction is likely bedrock.	a geologic obstruction (Navy, 1958) was provided within the last paragraph of Section 4.2.
<p>5. Section 3.2.15 Installation of Monitoring and Extraction Wells and Piezometers</p> <p>a. The third paragraph indicates the monitoring wells were installed with a transition seal of bentonite chips, but based on the boring logs included in Appendix F, a bentonite seal was not placed in any of the wells. Please evaluate and revise the RACR as needed.</p> <p>b. In the last sentence of the third paragraph, the text states that “the wells were grouted from the top of the bentonite seal to the ground surface.” Please revise this sentence to state that the well annular space was grouted.</p> <p>c. The only figure included with the well locations is provided in Appendix C. It is recommended that a figure showing the locations of the new wells and piezometers is included in the main body of the RACR.</p> <p>d. The RACR indicates that the wells and piezometers were not completed with a surface completion to protect the well, but there is no indication of how the wells are currently completed at the surface and how these locations are being protected while additional work needs to be completed at the site. Please revise the RACR to indicate what condition the wells were left in and what measures have been taken to protect the wells.</p> <p>e. The text does not indicate when the new wells will be developed and samples. Please revise the RACR to state when well development and well sampling will occur.</p>	<p>a. The Draft boring logs for the monitoring wells initially included in Appendix F have been updated to accurately reflect a transition seal of bentonite chips.</p> <p>b. The sentence was revised as follows: “...the annular space of the wells was grouted from the top of the bentonite seal to the ground surface.”</p> <p>c. For continuity, a version of the Foundation Grading As-built (Drawing C6 [Appendix C]) will be copied forward to the main portion of the RACR as Figure 9. This new figure will be used to present the new upgradient well network.</p> <p>d. For clarity, the following statement has been added to Section 3.2.15, “As well completions are to be finalized by the Navy’s follow-on contractor, the wells were generally left with 2 plus feet of casing sticking up above ground surface and a compression cap covering the opening. A cone or similar demarcation item was additionally left at each well location to increase visibility so as to avoid contact with any potential vehicle traffic at the site.”</p> <p>e. For clarity, the following statement has been added to Section 3.2.15, “In accordance with the technical specifications of the DBR (ERRG, 2014), each of the three new monitoring wells were developed within 72 hours of their installation. (Appendix X includes data for the development water characterization.) Well sampling of the completed upgradient well network will be the responsibility of a future Navy contractor.”</p>
<p>6. Section 3.4.1 Soil and Debris</p> <p>This section discusses the wastes that were generated, but does not provide details on how much material was disposed of off-site or placed in the waste consolidation area at the site. Please revise the RACR to include details on where the wastes went and what volumes were disposed of off-site and on-site in one section of the text.</p>	<p>For clarity, additional language has been added to Section 3.4.1 to better describe the final disposition of soil and debris generated on site. In addition, the following paragraph has been added to the end of Section 3.4.1:</p> <p>“A detailed summary of all material transported off-site for disposal is presented in Appendix X, which in summary includes approximately 2,310 tons of Resource Conservation and Recovery Act hazardous material;</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Marikka Hughes, California Department of Toxic Substances Control, Geological Services Unit, comments dated February 28, 2020

	approximately 62.43 tons of non-hazardous construction debris; 774 cy of non-hazardous soil; and 98,380 pounds of recycled steel sheet pile.”
<p>7. Section 3.9 Decontamination and Release of Equipment and Tools</p> <p>This section does not provide a discussion of how the drilling rig and downhole equipment were decontaminated. Please revise to state what decontamination measures occurred during the installation of the wells and piezometers.</p>	Additional text has been added to Section 3.2.15 Installation of Monitoring and Extraction Wells and Piezometers.
<p>8. Appendix F Monitoring Well Network (Logs and Data)</p> <p>a. It is recommended that a table providing the well construction data for the wells and piezometers installed be provided in the RACR.</p> <p>b. The well construction diagrams on all boring logs except for EX WELL-001 do not provide details regarding the two uppermost materials placed in the annular space. Please revise the diagrams to identify what materials were used in the construction of these wells and piezometers.</p> <p>c. On the boring log for EX WELL-001, there is a backfill material indicated beneath the well construction materials. Please revise the log to indicate what this material is.</p>	<p>a. A summary table providing the well construction data for the wells and piezometers installed has been amended to the start of Appendix F.</p> <p>b. The draft boring logs have been updated to accurately provide well construction materials for all wells and piezometers included within Appendix F.</p> <p>c. The subject boring log has been updated to accurately reflect well construction materials.</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Jesse Negherbon, California Department of Toxic Substances Control, Engineering and Special Project Office, comments dated March 4, 2020

Comment	Response
<p>1. Section 3.2.9 Perimeter Channel Outlet.</p> <p>The fifth sentence states that bedding material consisting of sand with a maximum particle size of two inches was used during final grade restoration where the outfall pipe passed through the nearshore slurry wall cap. However, we note that the described two-inch material would classify as gravel and that the maximum sand particle size per the Unified Soil Classification System (USCS) is 4.75 millimeter. The text should be revised to include the correct description of the bedding material used and the relevant construction specification should be cited.</p>	<p>For clarity, the noted statement has been revised to read as follows:</p> <p>“Where the outfall pipe passed through the nearshore slurry wall cap, bedding material consisting of silty, clayey sand with gravel (Bernard Pile [Appendix M]) was used during restoration of final grade.”</p>
<p>2. Section 3.2.14.5 Excavation and Installation</p> <p>The first sentence in the seventh paragraph states that approximately 760 cubic yards (cy) of soil and debris was excavated during the upland slurry wall construction. It is not clear if these are bank or excavated cubic yards, and if the slurry wall cap excavation materials are included. Based on the described slurry wall configuration, our calculations indicate a total bank cubic yardage of more than 100 cy above the reported number. The volume of excavated soil and debris should be reviewed and revised, if necessary, to conform to the slurry wall configuration.</p>	<p>The excavated volume of material removed during construction of the upland slurry wall has been confirmed as approximately 760 [bank] cubic yards. This volume does not include material used to construct the final trench cover which, as described in the paragraph above, took place after the entire alignment of the trench and temporary cover was installed.</p>
<p>3. Section 4.2 Upland Slurry Wall and French Drain</p> <p>The second sentence in the third paragraph states that information collected during installation of the slurry wall together with a historical record search indicates that the obstruction encountered at a depth of about ten feet along an approximate 200-foot section of the slurry wall alignment is geologic rather than man-made. The sentence further states that Aptim recommends leaving the slurry wall as constructed without further alterations to the target depth. However, we note that the text does not discuss the field data and nature of any samples obtained to support the geologic nature of the obstruction or how the requirement to key in the slurry wall into the underlying bay mud was met. The text should be revised to include a discussion of the field sampling data/information and the effect of terminating the slurry wall on top of/within the obstruction and whether/how this termination meets the approved design.</p>	<p>As described in the final paragraph of Section 3.2.14, the upland slurry wall is considered a “hanging” slurry wall because it was not intended to key into an aquitard. A two-foot key into the underlying bay mud layer was only a requirement for the nearshore slurry wall which was installed by a previous contractor in 2016. As discussed within the final DBR, some groundwater will flow under the upland slurry wall, but groundwater modeling predictions (DBR Appendix F; ERRG. 2014) indicate that upgradient flow will mostly be diverted around the upland slurry wall or diverted to the freshwater wetland via the French drain (Section 3.2.14.7) installed on the upgradient side of the upland slurry wall.</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Jesse Negherbon, California Department of Toxic Substances Control, Engineering and Special Project Office, comments dated March 4, 2020

<p>4. Table 3 Waste-Consolidation Comparison Criteria</p> <p>The comparison criteria value for lead is shown as 19,700 milligrams per kilogram. However, this value is ten times that shown in Table 1 Hot Spot Goals for Soil and Sediment. This value should be reviewed for accuracy and revised accordingly.</p>	<p>Table 3 of the Draft (Phase II) RACR does indeed contain a typo in that the Hot Spot Goal for lead should read 1,970 (mg/kg). This table will be reviewed and revised for accuracy during the Final (Phase II) RACR submittal.</p> <p>Please note that while this table does contain a typo, the correct value of 1,970 mg/kg was used during the lead soil investigation summarized in Appendix X.</p>
<p>5. Appendix C Construction As-Built Drawings. Drawing C2 Shoreline Revetment Finish Grading As-Built</p> <p>The nearshore slurry wall shown on the drawing is on the order of 1200 feet long. However the nearshore slurry wall described in the report text is indicated to be on the order of 571 feet. In addition, the drawing does not show all the existing features, specifically Drawing C1 Pre-Existing Site Conditions shows at least three pre-existing monitoring wells that are proximal to the alignment of the nearshore slurry wall and which are not shown in Drawing C2. In addition, Drawing C2 shows 13 extraction wells which are not shown in Drawing C1, and are not discussed in the report. The drawings and report should be reviewed for consistency and revised accordingly.</p>	<p>As stated in the first paragraph of Section 3.2.14:</p> <p>The ROD (Navy, 2012) specifies that groundwater at Parcel E-2 will be controlled through the installation of two below-ground barriers; the nearshore slurry wall (installed by the Phase I contractor in 2016) and the upland slurry wall constructed under this RA. Therefore, all references to slurry wall installation within this RACR should be in reference to the ‘upland’ wall, which extends approximately 571 feet from the northern parcel boundary to the southern extent of the landfill waste in the western portion of Parcel E-2.</p> <p>The as-built location of the nearshore slurry wall (Phase I, 2016) is shown on Drawing C1, Pre-Existing Conditions, as well as the location of the monitoring well network as it existed prior to initiation of the Phase II RA. Drawing C2 shows the as-built installation of the nearshore slurry wall and newly installed upgradient well network (Section 3.2.15) which included the installation of 4 piezometers, 3 monitoring wells, and 13 leachate monitoring/extraction wells.</p>
<p>6. Appendix C Construction As-Built Drawings. Drawing C6 Foundation Grading As-Built</p> <p>The contours shown on this drawing differ from those shown on Drawing C2 Shoreline Revetment Finish Grading As-Built. The text report states that Phase II remedial action completion left finished grades as foundation layer grades. The drawings should be reviewed and revised to remove the discrepancies.</p>	<p>As-built Drawing C2 was only intended to show the as-built conditions at the shoreline, while as-built Drawing C6 represents the final as-built conditions of the foundation grade. However, to help avoid confusion, the contours shown on as-built Drawing C2 have been updated to the final foundation grade as suggested within the figure title.</p>
<p>7. Appendix C Construction As-Built Drawings. Drawing C7 Upland Slurry Wall and French Drain As-Built. The Profile View Alignment – (Upland Slurry Wall) shows a bottom slurry wall elevation of about – 10.00 feet with an approximate 200-foot section with a bottom elevation of elevation 0.00 feet. Note 1 associated with the profile states that the Bay mud for the</p>	<p>As-built Drawing C7 is a true and correct representation of the upland slurry wall which is described in the final paragraph in Section 3.7.2.2 of the DBR (ERRG, 2014). As described in the DBR, “The upland slurry wall will be installed from the designed finish grade, down through a thin noncontiguous lens of Bay Mud (identified in the boring logs as clay with</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Jesse Negherbon, California Department of Toxic Substances Control, Engineering and Special Project Office, comments dated March 4, 2020

<p>section is noncontiguous and not considered an aquitard. However, we note that the third sentence in the second paragraph in Section 3.7.2.2 Wall Depths of the August 2014 Final Design Basis Report, Parcel E-2 states that the bottom elevation of the nearshore slurry wall varies between -6 and -20 feet below msl based on the location of the underlying Bay Mud aquitard, stated in the first sentence of the same paragraph. The as-built condition appears to be a deviation from the Design Basis Report (DBR), and it is not clear if the Bay Mud aquitard was engaged. The as-built condition should be evaluated against the DBR and the implications of not engaging the underlying Bay Mud should be evaluated, in relation to the effectiveness of the nearshore slurry wall, and the conclusion(s) in the third paragraph in Section 7.1 Conclusions should be revised as necessary.</p>	<p>shell fragments), to an elevation of approximately -10 feet below msl.” The details described in paragraph two of Section 3.7.2.2 of the DBR are in reference to the nearshore slurry wall which, as previously discussed, was installed by the Phase I contractor in 2016.</p>
<p>8. Appendix M Quality Control Testing Results</p> <p>The Daily-Compaction Test Report by Smith-Emery San Francisco dated 7/5/18 presents 13 field compaction test results all marked as passing. However, the specified relative compaction is shown as 95% and all the test results are between 91 and 93 percent of the maximum dry density which indicates that all the test results failed to meet the compaction specification. All the reported test results should have been indicated as failing and the appropriate box below the results table should have indicated that the material tested did not meet requirements of the jurisdiction approved documents. The compaction test report should be revised to address and resolve the discrepancy and a discussion on the implications of the failed compaction tests on the performance of the associated work should be included in the report.</p>	<p>As specified in the final DBR for Parcel E-2 (ERRG, 2014); “Soil cover material at depths greater than 0.5 foot below the final cover surface will be compacted to 90 percent or greater of the maximum dry density at or near optimum moisture, in accordance with ASTM International (ASTM)-modified proctor density testing.” References in the Daily-Compaction Test Report by Smith-Emery citing a compaction specification of 95% are in error and the reported test results ranging between 91 and 93 percent of the maximum dry density were correctly reported as passing test results. The compaction test reports in Appendix M will be reviewed and revised, as necessary, to resolve this discrepancy.</p>
<p>9. Appendix O Weekly Control Meeting Minutes. Project QC Meeting Notes from QC Meeting 45 (08.29.2017)</p> <p>The bolded text at the bottom of Item 5 states that compaction was not performed during backfilling because the backfilling work was shoreline work and there were no compaction requirements. However, our review of As-Built Drawing C5 Subgrade Excavation Volumes shows that 204 cubic yards of fill was placed in conjunction with the revetment and As-Built Drawing C3 Shoreline Revetment Detail shows “Compacted foundation” below the geogrid. The meeting note indicates that the DBR requirement was not followed and additionally that the “Compacted foundation” text in</p>	<p>Please note that construction of the shoreline revetment did not begin until April 2018 (QC Meeting 76, 04/10/2018). Project QC Meeting Notes from QC Meeting 45 (8/29/2017) discuss backfilling in the tidal wetlands and panhandle area. Thus, backfilling along the shoreline in this context should be in reference to the Tidal Wetlands. As-Built Drawing C5 Subgrade Excavation Volumes correctly shows a fill of 0 cubic yards placed within the Tidal Wetland during construction of the Subgrade surface.</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Jesse Negherbon, California Department of Toxic Substances Control, Engineering and Special Project Office, comments dated March 4, 2020

<p>As-Built Drawing C3 is in error. The As-Built drawing should be revised accordingly and the implications of the presence of an uncompacted foundation layer, at least locally, on the long-term performance of the revetment should be evaluated.</p>	
<p>10. Appendix O Weekly Control Meeting Minutes. Project QC Meeting Notes from QC Meeting 49 (09.26.2017)</p> <p>The bolded text at the end of Item 5 refers to brick as Naturally Occurring Radioactive Material (NORM) and states that the tentative plan was to leave the bricks in place. The Comments/Questions section after Item 11 in the Project QC Meeting Notes from QC Meeting 53 (10/24/2017) indicates that fire brick was left in place in the North Perimeter. The Comments/Questions section after Item 11 in the Project QC Meeting Notes from QC Meeting #81 (5.15.2018) states that fire brick was NORM and was thereby not subject to Navy cleanup. Although we recognize that manufactured brick may contain NORM, the basis for exempting the manufactured brick materials from removal and disposal at this site is not clear. We also note that the handling and final disposition of the bricks is not discussed in the RACR text. The RACR text should be revised to include the data that identifies and documents the brick materials as NORM, a description of the basis for not removing them during the remedial action, and a discussion of how the bricks were handled and their final disposition.</p>	<p>The data which identifies and documents the brick material as NORM was provided in the RACR Appendix W Survey Unit Characterization Reports. As an example, see North Perimeter SU 01, 02, 03, 04, 05 and 09 Hunters Point Naval Shipyard, Parcel E-2 Radiological Characterization of Subgrade Data Report.</p> <p>A discussion of how the bricks were handled and their final disposition has been added to Section 3.4.2, Low-Level Radioactive Waste, which was revised to read as follows:</p> <p>“Materials that exceeded the radiological release criteria in Table 2 were handled as LLRW. Materials that were determined to be NORM, such as fire-brick, were removed during the ex-situ soil screening process and also dispositioned as LLRW. Approximately 85 cy of soil and other materials were placed in bins as LLRW. The bins were transferred to the Navy LLRW contractor for disposal. Appendix E includes LLRW waste manifests.”</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Tami LaBonty, California Department of Fish and Wildlife, Office of Spill Prevention and Response, comments dated March 5, 2020

Comment	Response
1. Appendix T. Please label all photographs with the date, a brief description of the photo, and the direction the photo was taken where appropriate.	Appendix T includes results of the biological surveys and daily biological inspections as prepared by NOREAS Inc. to support the remedial action performed by APTIM. The daily biological monitoring form attached with each set of photos provide a date and a brief summary of activities for the day. No additional changes to the photographs are recommended at this time.
2. Page T-41. The version of Appendix T that we received starts on page T-41. Are pages T-1 to T-40 supposed to be included in Appendix T?	Appendix T, 2,547 pages in total, should begin with page T-1 and end with page T-2,547. Future submittals of this Appendix will be verified for completeness prior to re-submittal.
3. Pages T-114 to T-130. The Daily Biological Monitoring Forms dated 1/1/17 and 1/18/17 are out of sequence in the appendix. These forms are included between the forms dated 1/26/17 and 4/03/17. Please rearrange the forms and associated photographs into chronological order.	The daily biological monitoring forms in Appendix T have been reviewed and rearranged into chronological order as appropriate.
4. Page T-585 and T-696. The Daily Biological Monitoring Forms indicate nesting American Avocets have been observed at two distinct active nest sites and a 50 foot activity exclusion buffer was being maintained around both nests (first indicated on the form dated 5/31/17 for the first nest site, and on 6/12/17 for the second nest site). Please include photographs of these two nests sites with the corresponding monitoring forms, if available.	APTIM has received a Memo dated 4/24/2020 from NOREAS, their biological subcontractor, that includes photographs of the two nest sites. The Memo is provided as an attachment to this RTC file (Appendix A).
5. Page T-1972. From page T-1972 forward, please check the dates on the Daily Biological Monitoring Forms to ensure they are correct and revise as needed. Some of the forms are dated with the year 2016 instead of 2017. Some of the forms have the same day of the month (e.g., page T-1979 11/2/17 and page 1994 11/2/16).	Appendix T has been reviewed and revised to address any inconsistencies.

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Karen Ueno, US Environmental Protection Agency, comments dated March 6, 2020

Comment	Response
1. U.S. EPA supports DTSC's comments on the draft RACR that were submitted to the Navy on 03/05/2020 and which are attached for convenience. EPA attempted not to repeat DTSC's comments except for particularly important concerns.	Comment noted.
2. Section 3.2.10.1 indicates that there are more than the apparent 6 FWV/FCR identified in Section 3.12. Correct this discrepancy and include clear descriptions in the RACR of all work variances and change requests and their approval status.	Section 3.2.10.1 introduces the acronym Field Work Variance (FWV), of which there are two: FWV-04 and FWV-05. Section 3.2.10.1 also introduces the acronym for Survey Unit freshwater (FW). The two acronyms, while similar, are not interchangeable.
3. Section 4 includes many FWV/FCRs, but no clear indication of approval status. The RACR needs to clearly identify all FWV/FCR and their approval status. See comment, above.	As summarized in Section 3.12, Deviations from Planning Documents: A total of six FCRs and FWVs were created and implemented during this project. FCRs and FWVs were prepared and approved to address unexpected changes or to improve production. Each of the listed FCRs and FWVs under Section 3.12, along with their corresponding Navy approval, are presented in Appendix G. Note, the first five FCR/FWVs were signed off for approval by the Navy RPM, while the final FCR (-006) was approved via email provided for reference in Appendix G.
4. "Recommendations and Ongoing Activities" needs to clearly identify all Phase II work being deferred to the Phase III contractor, with cross-references to the approved FWV/FCR.	For clarity, Section 7.2, Recommendations and Outgoing Activities has been revised to include the following two new bullets: <ul style="list-style-type: none">• "Import, place, and compact the estimated 9,277 cy of fill required to complete construction of the foundation layer (Section 4.5), deferred from the Phase II RA; resolved August 15, 2019 during final site inspections with the Navy (Appendix B)• Install the final upgradient well network surface completions (Section 3.2.15), deferred from the Phase II RA; resolved under Navy approval of FCR-006 (Appendix G)"
5. The Navy's "Certification Statement" should acknowledge the FWV/FCRs approved by the Navy, called out in the RACR (including design changes), and the specific Phase II work deferred to Phase III. Otherwise the certification is less meaningful and could be misconstrued as construction completed as originally designed.	For clarity the text of Section 8.0, Certification Statement, has been revised to read as follows: "I certify that this RACR memorializes completion of the construction activities to implement the RA at Parcel E 2 Phase II at HPNS, San Francisco, California <u>specifically 1) construction of the shoreline revetment structure; 2) excavation for the freshwater and tidal wetlands; 3) site grading and consolidation of excavated soil, sediment, and debris; 4)</u>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Karen Ueno, US Environmental Protection Agency, comments dated March 6, 2020

	<p>installation of the Parcel E-2 upland slurry wall; and 5) radiological surface scanning, remediation, and clearance of the HPNS Parcel E-2 site. The RA was implemented pursuant to the ROD (Navy, 2012) and the DBR (ERRG, 2014), and in accordance with the Work Plan (CB&I, 2016), with deviations noted herein. This RACR documents the implementation of a portion of the remedy selected in the ROD, specifically the shoreline revetment; site grading and consolidation of excavated soil, sediment, and debris; and upland slurry wall installation. <u>Recommendations and ongoing activities have been presented in detail in Section 7.2 of this RACR.</u> No additional construction activities for this phase of the remedial design are anticipated at this time, thus these portions of the RA are deemed complete.”</p>
<p>6. As indicated in Section 4.2, the slurry wall does not meet design specifications due to a subsurface obstruction. This appears to be a substantive design deviation. The RACR needs to identify the FWV/FCR that documents the change. The RACR also needs to adequately demonstrate, aside from a reference to a 1958 report, that weathered serpentine rock is creating the obstruction and why no alteration to the slurry wall is necessary to accommodate for such weathered obstruction.</p>	<p>As designed, the upland slurry wall is considered a “hanging” slurry wall because it was not intended to key into an aquitard. While the RACR does document an approximate 200-foot section of the wall which was unable to obtain the full depth of design, the wall through this section was cut as deep as practical into the geologic feature encountered. Further evaluation of the groundwater modeling predictions presented as part of the DBR (Appendix F; ERRG. 2014) is considered outside the scope of this contract.</p> <p>See also response to San Francisco Bay Regional Water Quality Control Board comment #15.</p>
<p>7. Was the survey discussed in Section 4.4, performed with QA by an independent source?</p>	<p>During implementation of the Parcel E-2 RA, a third-party contractor (Battelle) was hired by the Navy to monitor and oversee the radiological data process and evaluation. While Battelle did not perform physical over-check surveys of the post excavation SU’s, they did periodically perform visual observations of APTIM’s in-process field surveys.</p>
<p>8. In Section 4.5, 9,277 cubic yards of fill will be deferred to Phase III. Identify the FWV/FCR that support this change and include the deferred activity, cross-referenced to the appropriate FWV/FCR, in “Recommendations and Ongoing Activities.” See comments, above.</p>	<p>For clarity, the final sentence of paragraph three to Section 4.5 has been revised to read as follows:</p> <p>“These punch list items, including deferral to import, place, and compact the estimated 9,277 cy of fill required to complete construction of the foundation layer, were verified as complete and acceptable by the Navy RPM on August 15, 2019.”</p> <p>See also response to comment #4 above.</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Karen Ueno, US Environmental Protection Agency, comments dated March 6, 2020

9. Section 4.6 states that well completion is pending removal of rock and placing of concrete collars on the wells (FCR 6 approved these changes). Include the deferred activity, cross-referenced to the appropriate FWV/FCR, in "Recommendations and Ongoing Activities." See comments, above.	Concur. See response to comment #4 above.
10. In Section 4.8, demonstrate how the as-built condition of the cover remains protective given the risk modeling and the as-built conditions.	The risk modeling presented is in accordance with the approved Remedial Action Work Plan, Section 5.7 Risk Modeling, was to "perform risk modeling to demonstrate the radiological risk at the final ground surface." This directive is also in accordance with the Navy's Statement of Work issued in support of this Contract Task Order (N62473-12-D-2005), which states the Contractor shall, "...perform risk modeling that will demonstrate the radiological risk at the final ground surface (following installation of a demarcation layer and soil cover performed by others) is within the risk management range specified in the NCP (10-6 to 10-4)." Risk modeling for the interim site conditions, i.e., prior to installation of the final cover system, is considered outside the scope of this contract.
11. The Remedial Design Package (Remedial Action Monitoring Plan, Land Use Control Remedial Design, Operation and Maintenance Plan, and Construction Quality Assurance Plan) will need to be updated and/or revised prior to and after the Phase III project, including final landfill gas collection and control system and monitoring program and the leachate collection and control system.	Comment noted This work is beyond the scope of this contract. Any follow-on work will be addressed by the Navy.
12. The standard practice in closing bayshore landfills where waste is partially under groundwater (with or without slurry wall containment) is to maintain an inward gradient from the Bay to the fill by pumping leachate and monitoring the gradient. We note that inboard extra wells have been constructed. The complete extraction and pumping system should be included in Phase III.	Comment noted This work is beyond the scope of this contract. Any follow-on work will be addressed by the Navy.
13. Has evaluation of the required pumping rates to maintain an inward gradient been completed or planned? If discharge of leachate to POTW is planned, the quality of the leachate should be characterized prior to the construction to verify the need for a pre-treatment, and discussion initiated to establish the viability and feasibility of obtaining a permit.	Comment noted This work is beyond the scope of this contract. Any follow-on work will be addressed by the Navy.
14. Description of as-built design changes from approved plans and specifications is a standard requirement for construction but they are not	The RACR provides Section 3.12, Deviations from Planning Documents to describe as-built design changes from the approved plans and

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Karen Ueno, US Environmental Protection Agency, comments dated March 6, 2020

<p>found in the RACR, nor in the plans and specification as red markups. There are a few red markups, but they are not legible. The RACR should include a section describing design changes, and full markup of the plans and specifications.</p>	<p>specifications. Reviewing, editing, or otherwise marking up the Navy's approved plans and specifications is beyond the scope of this contract.</p>
<p>15. Please verify the removal and proper disposal of the construction and demolition debris that are noted in Appendix X (Waste Manifest Data) as still on-site.</p>	<p>The material in question was not removed from site until after the submittal of the Draft (Phase II) RACR. To finalize this table, the Date of Transportation for Construction Debris, (RSY pad plastic and Building 258 general debris), has been revised to read: "December 6, 2019."</p>
<p>16. Appendix X Waste Manifest and Waste Data</p> <ol style="list-style-type: none"> The information and presentation don't clearly verify that soils and other wastes were managed appropriately and that the remediation goals of Tables 1-3 were met. Summary tables with sampling data and statistics (and/or prior investigation results) compared with non-hazardous thresholds where the waste was managed as non-hazardous would be helpful, as would verifying that the sampling data remediation goals have been met. The manifest copies are not signed. It appears that the Tidal and Freshwater Wetlands Confirmation Testing results indicate locations where hot spot goals were exceeded (red color). Please clarify and if true, describe the actions taken or to be taken to address these exceedances. 	<ol style="list-style-type: none"> The final version of Appendix X has been revised to include an updated Table, Summary of Waste Materials from Parcel E-2, showing the final disposition of all off-site waste streams accompanied by a tabulated summary of the supporting waste sample results. Waste manifests will be reviewed to ensure the final signed versions are represented. No soil exceeding lead criteria were left in the excavation of the Tidal Wetlands and Freshwater Wetland. For better clarity of work completed in these areas, the RACR has been revised to move the discussion, tables and figures associated with the Tidal Wetland and Freshwater Wetland excavation, confirmation sampling and figures forward to the main text.
<p>17. Appendix AA (Draft Soil Data, Laboratory Data Quality Assessment Summary Report). The PCB results for sample TW-EB-T66-001 were rejected. Section 1.5 states, "Surrogate recoveries were less than 10% for some PCB samples, all detected compounds were qualified as "J-" and all non-detected compounds as "R". The second surrogate was within control limits. Although the data were qualified as estimated due to noncompliant surrogate recoveries, data usability was not affected."</p> <p>The RACR does not provide a figure identifying the locations and depths of collected samples or table summaries of the final results. It appears from the sample nomenclature, that this sample was collected in the Tidal Wetland (TW) area (Figure 5). Assuming this is a sediment sample, the "Hot Spot Goal" per Table 1 is 1.8 mg/kg for PCBs in sediment. Please address how these unusable data affected the soil and sediment remedial action goals specified in Section 2.0 of the RACR.</p>	<p>Further investigation of laboratory raw data was subsequently performed based on the "rejection" findings in the validation report. The laboratory narrative reported surrogate recovery was affected by "evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed."</p> <p>PCB analysis is performed using 2 columns and detectors for confirmation purposes. The laboratory primarily reports from Column A. The severe interference and low recovery were observed with Column A analysis. Column B results showed less interference and higher surrogate recoveries (19.2%), which is above the data validation rejection criteria. Both columns indicate PCBs were not detected in the sample. The final results will be reported from Column B, with J (estimated) qualifier to indicate matrix interference with possible low bias, but still usable for project decisions.</p>

Response to Comments on the <i>Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047</i>	
<i>Comments by: Karen Ueno, US Environmental Protection Agency, comments dated March 6, 2020</i>	
	EPA protocol also states to “Use professional judgment in qualifying data, as surrogate recovery problems may not directly apply to target analytes.”
18. Additional comments on the rad portions of the RACR may be forthcoming, as appropriate.	The CDPH RHB Branch has no comments per March 5, 2020 letter from DTSC, Juanita Bacey.

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Jeff White, San Francisco Bay Regional Water Quality Control Board, comments dated March 6, 2020

Comment	Response
<p>1. Section 3.2.10.1, Excavation to Construct Future Wetlands</p> <p>Bottom excavation was extended 5 feet laterally and 1 foot deeper due to a post-excavation bottom sample analytical result exceeding a hot spot cleanup goal. This resulted in an over-excavation volume of less than 1 cubic yard (yd³). This bottom soil volume removed is not commensurate with the in-situ soil volume represented by the failed sample analytical result (93 yd³).</p> <p>According to the Phase II Remedial Action Work Plan (Phase II RAWP) on page 7-9, soil was to have been “removed along the exposed sidewall face a maximum of 25 feet on each side of a failed sidewall sample (and 2 feet outward),” due to a post-excavation sidewall sample analytical result exceeding a hot spot cleanup goal. Yet, according to the Phase II RACR, soil was removed 5 feet on each side of a failed sidewall sample, resulting in an over-excavation volume of approximately 3 yd³. This sidewall soil volume removed (3 yd³) is not commensurate with the in-situ soil volume represented by the failed sample analytical result (15 yd³).</p> <p>Comment 1: Although over-excavation dimensions generally follow the approved Phase II RAWP, we are concerned that over-excavation of contamination was not extensive enough to achieve the hot spot goals throughout the Freshwater Wetland and, consequently, residual pollutants may impact the health of the Freshwater wetland and the Bay.</p>	<p>No contamination was left in place. The over excavation process started with a 5’ lateral step out on each side of exceeding sidewall sample and a 2 feet step back (deep). Then 3 additional confirmation samples were collected from the new sidewalls step out. If the lateral distance of 5’ was not sufficient, the step out sample would identify further excavation was necessary until the final limits of contamination were bounded (see new WP Figure 8). This process did work to expose sidewalls requiring further excavation, as described in the additional lead excavation performed in the Freshwater Wetland Grid F25.</p>
<p>2. The Phase II RACR states on page 3-10 that “chemical confirmation results exceeded the appropriate hot spot goals in sample grid locations (SU freshwater [FW]) FW-7, -08, -09, -25, -33, and -47 (Figure 5).” The survey unit (SU) grid shown on Figure 5 is not the sampling grid layout shown on multiple figures presented in Appendix G and Appendix X, which was used for cleanup of Freshwater Wetland soil.</p> <ol style="list-style-type: none"> Refer to the appropriate figures and sample grid system There was a hot spot goal exceedance for lead at grid location F46. Describe this hot spot goal exceedance and remedial action. At grid locations F22 and F29, there were hot spot goal exceedances for combined total petroleum Hydrocarbons (TPH; or summed gasoline-range hydrocarbons [TPH_{GRO}] and motor oil-range hydrocarbons 	<p>The Radiological Survey Unit Grids are not the same as the Freshwater and Tidal Wetlands excavation chemical confirmation sampling grids. No soil exceeding lead or TPH criteria were left in the excavation of the Tidal Wetlands or Freshwater Wetland. Exceedances were removed. For better clarity, the RACR has been revised to move the discussion, tables and figures associated with the Tidal Wetland and Freshwater Wetland excavation, confirmation sampling to the main text.</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Jeff White, San Francisco Bay Regional Water Quality Control Board, comments dated March 6, 2020

<p>[TPH_{MORO})). Describe these hot spot goal exceedances and remedial actions.</p>	
<p>3. It is unclear why summed concentrations of TPH_{GRO} and TPH_{MORO}, rather than TPH_{DRO} and TPH_{MORO}, were used for comparison of soil sample analytical results to the TPH hot spot goal. Please explain.</p>	<p>Total TPH concentrations are calculated by adding all three TPH results (TPH_{GRO}, TPH_{DRO} and TPH_{MORO}) concentrations. Reporting limits for results qualified as not detected (U) are not additive. e.g. $35J + 45U + 35 = 70$ $35J + 45J + 35U = 80J$ $35U + 45U + 35U = 45U$ The data tables have been reviewed and revised to correct addition errors as necessary.</p>
<p>4. It is unclear why 9 to 11 months elapsed between initial confirmation sampling and follow-on, step-out confirmation sampling, as was the case at grid locations F22, F29, and at other locations. Extended exposure of TPH-contaminated soil to the elements (sun, wind, rain) may explain apparent cleanup to levels below the TPH hot spot goal when, in reality, residual TPH-contaminated soil remains in the Freshwater Wetland. Explain the long duration of time between sampling events at grid locations F22, F29, and at other locations. It may be necessary to resample at TPH-contaminated locations to demonstrate attainment of the TPH hot spot goal.</p>	<p>The long duration between initial excavation and remediation is a product of the danger associated with sampling a very large area that is excavated to bay mud. 95% of the samples collected required mechanical assistance through the use of an excavator. The length of time between initial confirmation and follow-up is a direct result of having to wait for an excavator to be available to assist in the follow-up remediation steps. Regarding Freshwater Wetland samples collected at F22 and F29, these two locations contained 6 to 7 feet of water and required bottom remediation. Remediation could only be done using an excavator capable of reaching the bottom of the excavation. Further delay occurred while waiting for a machine to be free. Given the volume of water contained within the open lead excavation area, a decision was made to allow for as much water as possible to evaporate prior to resuming additional excavation and sampling.</p>
<p>5. On the last page of Appendix E, Low Level Radiological Waste Manifests, a document, dated October 17, 2018, summarizes the lead concentrations for the following low-level radiological waste (LLRW) drum samples C8-U11 (13,000 mg/kg); and D12-U7 (140,000 mg/kg). The document states: “Per the APTIM Parcel E-2 Work Plan, Section 5.5.4 “A minimum of 1 foot in each direction of the surrounding soil will be removed and designated as LLRW. Therefore this soil was collected and designated as LLRW...Therefore, in accordance with BB&E guidelines, APTIM presented</p>	<p>The objects in question were detected and remediated from an RSY pad, specifically RSY pad C8 Use 11 and D12 Use 17. Figure 4 shows the layout of the RSY pad area. LLRO remediations are discussed in Appendix Z, RSY Pad Data Packages. In summary, the remediation referenced was not directly in response to lead contamination remediation. The minimum one-foot remediation, and the reference to the work plan text, is for LLRO remediation. The soil that</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Jeff White, San Francisco Bay Regional Water Quality Control Board, comments dated March 6, 2020

<p>these materials to BB&E (HPNS) for radiological characterization and disposal.”</p> <p>Describe the “2 [LLRO] remediations” in sufficient detail and show the areas on one or more maps. Provide acceptable documentation demonstrating the removal of a minimum of 1 foot in each direction of the surrounding soil, as well as the results of sampling and analysis demonstrating the attainment of hot spot goals. Provide an acceptable technical justification for over-excavating only 3 ft³, given the level of lead contamination in this LLRW. Provide the waste characterization laboratory analytical reports; completed, approved disposal facility waste profile documents; and the manifests that account for the transportation and disposal of this lead-contaminated LLRW.</p>	<p>the letter in Appendix E is talking about is the soil that was removed as a result of LLRO remediation which was designated LLRW.</p> <p>Disposal of this lead-contaminated LLRW is presented in Appendix E.</p>
<p>6. As stated in Field Work Variance No. 5 (Appendix G), dated May 29, 2018, the Freshwater Wetland step-out, over-excavation “process has cleared all sample grid locations except for F08 and F25, which continue to demonstrate elevated concentrations for Lead (Figure 2).” At grid locations FW-SW-F25-SO-005 and FW-SW-F25-SO-006, lead was present in soil at concentrations of 33,000 mg/kg and 2,100 mg/kg along the south and west sidewalls (third over-excavation). It does not appear that sidewall over-excavation was extended to achieve the hot spot goal.</p> <p>Provide documentation that sidewall over-excavation was extended to achieve the hot spot goal along the south and west sidewalls at FW-SW-F25-SO-005 and FW-SW-F25-SO-006. If the lead-contaminated soil at those locations was not acceptable removed, then provide a plan to address residual lead in soil where present at concentrations above the hot spot goal.</p>	<p>The sidewall exceedances observed in FW-F25 were addressed in the lead investigation efforts. Specifically, the western sidewall was completely excavated with metal debris and located adjacent to FW-F08 and FW-F16. For better clarity, the RACR has been revised to move the discussion, tables and figures associated with the Tidal Wetland and Freshwater Wetland excavation, confirmation sampling to the main text.</p>
<p>7. Field Work Variance No. 5 (Appendix G) describes an effort to establish the extent of lead contamination west of sampling grids F08 and F16, by exploratory test pitting, sampling, and analysis for lead. Based on the laboratory analytical results, the bounded area shown on Figure 2 was proposed for over-excavation, to an approximate depth of 4 to 7 feet bgs. However, the Phase II RACR does not provide information sufficient to determine whether or not the lead-contaminated soil within the bounded area was removed and properly disposed.</p> <p>A. Describe whether or not the bounded area on Figure 2 was actually over-excavated. If it was, then provide acceptable documentation of the work</p>	<p>a. No soil exceeding lead criteria were left in the excavation of the lead contamination conducted under FWV #5. For better clarity, a new Figure 8 has been added to the RACR showing the excavations limits and the lead results of final confirmation samples.</p> <p>b. The referenced figure has been replaced with a new RACR figure, Figure 8, which shows the final bounded limits of the over-excavation for the final lead excavation.</p> <p>c. During the initial phases of chasing the lead contamination in the sidewall of FW-SW-F25, the concentrations were so high only</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Jeff White, San Francisco Bay Regional Water Quality Control Board, comments dated March 6, 2020

<p>and the results of confirmation sampling and analyses demonstrating the attainment of hot spot goals.</p> <p>On Figure 2, the planned limits for over-excavation of lead-contaminated soil overlap sampling grids F08 and F16. However, the nomenclature used for the test pit samples includes “F25”, which is also a grid location some distance away from the test pits (and addressed by Comment 6 above).</p> <p>B. Confirm that the locations of the test pits and planned over-excavation are as they appear on Figure 2.</p> <p>C. It is not clear why for some step-out, sidewall over-excavations three confirmation samples were collected (e.g., FW-SW-F25-SO-002, -003, and -004 on 2/15/18 for the 35,000 mg/kg south sidewall exceedance of 12/20/17), and for other excavations only one sample was collected (e.g., FW-SW-F25-SO-005 on 3/6/18 for the 48,000 mg/kg south sidewall exceedance on 2/15/18 and FW-SW-F25-SO-006 on 3/6/18 for the 46,000 mg/kg west sidewall exceedance on 2/15/18). Explain the rationale for collecting either one or three sidewall confirmation samples. Identify where in the Phase II RAWP the sampling frequency is described.</p> <p>D. In Appendix G, the table “HPNS Parcel E-2 Tidal and Freshwater Wetlands Confirmation Testing Results” includes lead results for FW-EB-PBOX- series and FW-SW-PBOX-series samples. Identify on a map these sample locations, and describe in the text what the results represent, as well as any follow-on action performed or still necessary to address lead contamination of up to 15,000 mg/kg (FW-SW-PBOX01-S003).</p>	<p>selected samples were analyzed to make decisions. The final lead excavation limits are shown in Figure 8 and show the final lead concentrations in the excavation sidewalls and bottom. The final bottom and sidewall confirmation samples are compliant with RAWP required frequency.</p> <p>Sampling frequency is described in greater detail within the Phase II RAWP under Section 7.2.1.2, “Step-Out Excavations” and the SAP, Appendix B, Worksheet #17, Section 17.1, “Excavation and Site Grading.”</p> <p>d. New RACR figure 8 shows the location of the final samples for the lead. New RACR Table 6, shows the progression of lead results from initial to final.</p>
<p>8. Appendix X describes an investigation in the “Metal Slag and Ship Shielding Area.” Six five-feet deep by four-feet wide excavations were completed to characterize the extent of lead contamination (Figure 4). Bottom samples were collected at 5 feet and sidewall samples at 2.5 feet (only the sidewall facing the Freshwater Wetland was sampled). Samples were analyzed for lead, and the results are summarized below.</p>	<p>No soil exceeding lead criteria were left in the excavation of the lead contamination conducted under FWV #5. For better clarity, a new figure (Figure 8) has been added to the RACR showing the excavations limits and the lead results of final confirmation samples. A new table, Table 8, has been added to summarize the progression of sample results.</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Jeff White, San Francisco Bay Regional Water Quality Control Board, comments dated March 6, 2020

Location	Bottom	Sidewall	Location	Bottom	Sidewall
FW-F16-ID-001	190,000	89,000	FW-F25-ID-001	5,300	75,000
FW-F16-ID-002	640	23,000	FW-F25-ID-002	14,000	190
FW-F16-ID-003	290	27,000	FW-F25-ID-003	61	1,200

Note: Results expressed in mg/kg. Results in red exceed the hot spot cleanup goal for lead.

Appendix X describes the following actions taken (presumably) to excavate the lead contamination in the Metal Slag and Ship Shielding Area.

- An Area around 100 feet by 100 feet was excavated
- Three sidewall locations required over-excavation
- One bottom sample required over-excavation (to 7 feet bgs).

The level of detail provided for this excavation work is inadequate. The Phase II RACR, among other things, should:

- Clarify whether or not this excavation removed soil within the bounded area shown on Figure 4 (and Figure 2 of Appendix G).
- Depict the 100-feet by 100-feet excavation on a map.
- Describe the excavation depths.
- Present the results of confirmation sampling and analyses that demonstrate removal of the full extent of lead contamination where present at concentrations above the hot spot goal.
- If it cannot be demonstrated that the full extent of lead-contaminated soil was removed, then provide a plan to address unacceptable levels of residual lead in soil.

For better clarity, the RACR has been revised to move the discussion, tables and figures associated with the Tidal Wetland, and Freshwater Wetland and lead excavation, confirmation sampling to the main text.

Specifically, new figures 5 through 8 show the radiological screening and chemical sample locations summarizing the analytical strategy for the freshwater and tidal wetlands, while new tables 5 through 7 summarize the progression of the chemical confirmation testing results.

9. Appendix X states that “the [soil] waste [excavated from the Metal Slag and Ship Shielding Area] was characterized and stockpiled for off-site disposal. Resource Conservation and Recovery Act [RCRA] profiling is currently being done by U.S. Ecology under profile #070284198-0.”

- Provide (or identify where in the Phase II RACR is located) all waste characterization laboratory analytical data and the completed, approved disposal facility waste profile documents.
- Given that this RCRA hazardous waste (soil) was stored on the site for an extended period, from about May 2018 to July 22, 2019, provide all Waste Inventory Logs and Waste Storage Area Inspection Checklists.

- The final version of Appendix X has been revised to include an updated Table, Summary of Waste Materials from Parcel E-2, showing the final disposition of all off-site waste streams accompanied by a tabulated summary of the supporting waste sample results. Lab results for waste samples are included in Appendix AA, Analytical Data and Validation Reports.
- Although the soil in question was classified as a RCRA hazardous waste, work within the HPNS Parcel E-2 site was conducted in accordance with CERCLA guidance, and the excavated soils were stockpiled within a contiguous area of contamination (AOC). Per EPA guidance, under AOC policy, consolidation is not considered to be removal, thus contaminated soil can be consolidated or

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Jeff White, San Francisco Bay Regional Water Quality Control Board, comments dated March 6, 2020

<p>c. Include all Uniform Hazardous Waste Manifests (both Generator and TSDF-to-Generator copies), as well as any Land Disposal Restrictions documents.</p>	<p>managed within the AOC and a hazardous waste determination can be made after such consolidation.</p> <p>c. A summary of all required field documentation will be provided as part of the Final (Phase II) RACR submittal.</p>
<p>10. According to Appendix X, white crystalline lead oxide particles were observed, and samples were collected and analyzed. The maximum lead concentration was 190,000 mg/kg at location FW-EB-F16-ID-001. Appendix X states that “it would make sense that contamination was a direct result of the lead oxide that was previously used in the ship shielding area.”</p> <p>Describe the relationship of the lead contamination discovered during 2018 exploratory test pitting in the “Metal Slag and Ship Shielding Area (App X, Fig. 4),” to the contamination in the Metal Slag Area and the Ship Shielding Area cleaned up from June 2005 to May 2006, and from May 2012 to October 2012, respectively, by time-critical removal actions (TCRAs).</p>	<p>The quoted statement was entered into the daily field paperwork as a statement of “opinion” by the on-site field chemist and was not intended as a statement of fact. For clarity, this statement will be stricken from the revised version of Appendix X. Any further investigation as to the relationship of the lead contamination discovered and past site activities should be considered outside the scope of APTIM’s current contract.</p>
<p>11. In Appendix X, there are untitled tables with summary laboratory analytical results for various constituents for the following samples: PE2-SP-FW-COMP01, PE2-SP-FW-COMP02, PE2-SP-FW-COMP3, PE2SP-FW-DU1, PE2-SP-FW-DU2, PE2-SP-FW-DU3, and PE2-SP-FW-FD1.</p> <p>Identify on one or more maps the locations of the above-listed samples, describe in the text what the results represent, as well as any follow-on actions performed or still necessary to address the contamination indicated in the tables for those samples.</p>	<p>For better clarity, the RACR has been revised to move the discussion, tables and figures associated with the Tidal Wetland, and Freshwater Wetland and lead excavation, confirmation sampling to the main text.</p>
<p>12. In the Appendix X table, “Summary of Waste Materials from Parcel E-2” is indicated shipments of RCRA hazardous waste (soil) originating from the Freshwater Wetland Over-excavation and totaling 2,000 tons. On July 22, 2019, the RCRA hazardous waste (soil) was apparently transported to the US Ecology disposal facility in Beatty, Nevada. Based on the sampling dates provided in the Appendix X table, “HPNS Parcel E-2 Tidal and Freshwater Wetlands Confirmation Testing Results,” waste soil containing elevated lead would have accumulated on site from about October 2017 to July 22, 2019.</p> <p>a. Include (or identify where in the Phase II RACR is located) all waste characterization laboratory analytical data and the completed, approved disposal facility waste profile documents.</p>	<p>a. The final version of Appendix X has been revised to include an updated Table, Summary of Waste Materials from Parcel E-2, showing the final disposition of all off-site waste streams accompanied by a tabulated summary of the supporting waste sample results. Lab results for waste samples are included in Appendix AA, Analytical Data and Validation Reports.</p> <p>b. Per EPA guidance, under AOC policy, consolidation is not considered to be removal, thus contaminated soil can be consolidated or managed within the AOC and a hazardous waste determination can be made after such consolidation.</p> <p>c. A summary of all required field documentation will be provided as part of the Final (Phase II) RACR submittal.</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Jeff White, San Francisco Bay Regional Water Quality Control Board, comments dated March 6, 2020

<p>b. Given that this RCRA hazardous waste (soil) was stored on the site for an extended period, from about May 2018 to July 22, 2019, provide all Waste Inventory Logs and Waste Storage Area Inspection Checklists</p> <p>c. Include all Uniform Hazardous Waste Manifests (both Generator and TSDF-to-Generator copies), as well as any Land Disposal Restrictions documents</p>	
<p>13. Discharge of Lead to the Bay – As described above, we are concerned that residual contamination poses a threat to the health of the Freshwater Wetland and the Bay</p> <p>Given the proximity of lead oxide particles and lead-contaminated soil to the Freshwater Wetland, Freshwater Wetland Outfall, and the rock-lined swale that discharges to the Bay, evaluate the risks of exposure to terrestrial and aquatic wildlife. We recommend sampling and testing water of the Freshwater Wetland and the Freshwater Wetland Outfall, to evaluate the risks. Describe the results of the evaluation.</p>	<p>All of the lead contamination identified in the Freshwater Wetland grid F16 and F25 was removed for off-site disposal under FWV#05. New RACR Figure 8 shows the location of the final bounding samples for the lead. New RACR Table 5, shows the progression of lead results from initial to final.</p> <p>Additional investigation, including a complete fate and transport evaluation, should be considered outside the scope of APTIM's current contract.</p>
<p>14. Section 3.2, Remedial Action Objectives</p> <p>The control of groundwater via the Upland Slurry Wall and French drain, as well as by other remedies (Nearshore Slurry Wall and monitoring well network), will address the groundwater remedial action objectives (RAOs) for the protection of wildlife and are as follows:</p> <p>Prevent or minimize migration of chemicals of potential ecological concern to prevent discharge that would result in concentrations greater than the corresponding water quality criteria for aquatic wildlife.</p> <p>Prevent or minimize migration of A-aquifer groundwater containing total TPH concentrations greater than the remediation goal (where commingled with CERCLA substances) into SF Bay.</p> <p>Given that there is the 220-foot gap in the Upland Slurry Wall, described in detail how the performance of the Upland Slurry Wall will be monitored to ensure the achievement of the RAOs. Identify the monitoring well(s) between the Upland Slurry Wall and the Bay, to be used to monitor the performance of Upland Slurry Wall. Discuss whether or not the Remedial Action Monitoring Plan should be updated to account for the 220-foot gap in the Upland Slurry Wall through which A-Zone groundwater flows to the landfill, leaches landfill contamination, and travels to the Bay.</p>	<p>As designed, the upland slurry wall is considered a “hanging” slurry wall because it was not intended to key into an aquitard. As discussed within the final DBR, some groundwater will flow under the upland slurry wall, but groundwater modeling predictions (DBR Appendix F; ERRG. 2014) indicate that upgradient flow will mostly be diverted around the upland slurry wall or diverted to the freshwater wetland via the French drain (Section 3.2.14.7) installed on the upgradient side of the upland slurry wall.</p> <p>The nearshore slurry wall, which was installed by a previous contractor in 2016, serves to maximize the travel time of groundwater between areas upgradient of the barrier (i.e., the landfill) and the San Francisco Bay. The nearshore slurry wall will be supplemented by an upgradient well network to support monitoring and, if necessary, leachate extraction.</p>

Response to Comments on the Draft Remedial Action Completion Report, Parcel E-2 Phase II, Hunters Point Naval Shipyard, San Francisco, California, December 2019, DCN: APTM-2005-0013-0047

Comments by: Jeff White, San Francisco Bay Regional Water Quality Control Board, comments dated March 6, 2020

<p>15. Section 3.2.14, Upland Slurry Wall Installation and Section 4.2, Upland Slurry Wall and French Drain</p> <p>The Phase II RACR concludes that the 220-foot gap in the Upland Slurry Wall results from “a distinct layer of serpentine weathered bedrock encountered approximately 10 feet bgs in the northwestern corner of the Parcel E-2 site.” After completion of a subsurface investigation involving 12 borings and a review of “boring logs from historic documentation within the area,” the Phase II RACR concludes that serpentine weathered bedrock was the “buried obstruction” that impeded upland slurry wall construction.</p> <ul style="list-style-type: none"> a. Provide the boring logs and other relevant data from the 12-boring step-out investigation of the “buried obstruction,” supporting the conclusion that serpentine weathered bedrock was the buried obstruction that impeded Upland Slurry Wall installation. b. Provide the boring logs from historic documentation within the area, supporting the conclusion that serpentine weathered bedrock was the buried obstruction that impeded Upland Slurry Wall installation. 	<ul style="list-style-type: none"> a. Formal boring logs were not prepared as part of the direct-push drill rig investigation described under Section 4.2 of the RACR. The step-out investigation was only intended to confirm the presence/absence of the (as of that time, unknown) buried obstruction in relation to the proposed upland slurry wall alignment. As described under Section 4.2, no clear path around the subsurface obstruction was observed. b. Electronic copies of the relevant boring logs from the historic documentation within the area will be provide as part of the Final RACR submittal, as an attachment to this RTC file (Appendix A).
<p>16. Last, please make every effort to address these comments in conspicuous, frontal parts of the report in text, tables, and figures, insofar as possible, rather than in the myriad pages of the appendices.</p>	<p>Comment noted.</p>

Attachment 1
NOREAS Memo

Provided in response to California Department of Fish and Wildlife Comment No. 4

Memorandum

To: Nels Johnson – APTIM Corp. (APTIM)
From: Lenny Malo – NOREAS Inc. (NOREAS)
CC: Lincoln Hulse – NOREAS
Date: 4/24/2020
Subject: Shoreline Revetment, Site Grading, Consolidation of Excavated Soil, Sediment & Debris, and Upland Slurry Wall Installation Remedial Action at Parcel E-2 Hunters Point Naval Shipyard San Francisco, California – Biological Resource Activity Completion Memoranda

At the request of APTIM, NOREAS, supported the Shoreline Revetment, Site Grading, Consolidation of Excavated Soil, Sediment & Debris, and Upland Slurry Wall Installation Remedial Action at Parcel E-2 Hunters Point Naval Shipyard San Francisco Project (hereafter referred to as the Project). This memorandum (memo) provides responses to comments that NOREAS received from APTIM on 31 March 2020, on the aforementioned Project's Biological Resource Activity Completion Memorandum; which NOREAS transmitted to APTIM on 9 January 2019.

To that end, NOREAS has attached - Photographs of the American Avocets and thier nests that were observed on 5/31/17 and 6/12/17.



Photograph 1.

5/31/17 – First
Nest Detected



Photograph 2.

5/31/17 – First
Nest Detected



Photograph 3.

6/12/17 – Second
Nest Detected



Photograph 4.
6/12/17 –
American Avocets
feigning injury to
draw attention
away from the
away from the
Second Nest
Detected

If you have any questions regarding the information described herein, please contact me at your earliest convenience.

Respectfully.

Lenny Malo, MS
Biological & Natural Resources Services
16361 Scientific Way, Irvine, CA 92618-4356
www.noreasinc.com | lenny.malo@noreasinc.com | (714) 458-5695

Attachment 2

Historic Boring Documentation

Provided in response to Regional Water Quality Control Board Comment No. 25

- *Core Boring Logs C2 to C6 are believed to represent the approximate location of the Upland Slurry Wall alignment*

FOR OFFICIAL USE ONLY

Rec. 1/28/58
FINAL

SAN FRANCISCO NAVAL SHIPYARD
SAN FRANCISCO, CALIFORNIA

Advance Planning Report
for

LAND EXCAVATION AND FILL

PUBLIC WORKS PROGRAM FY 1958

S.S.D.B. PROJECT 12ND-682

CONTRACT NBy 9325

ENGINEERS COPY

440

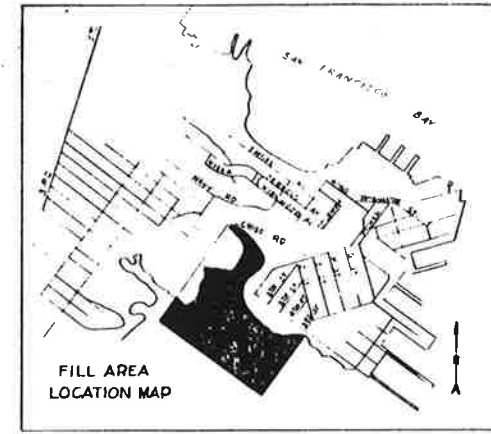
Return to Public Works

DRAFTING ROOM FILES

CONSULTING ENGINEERS
SAN FRANCISCO CALIFORNIA

BUREAU OF YARDS AND DOCKS
DEPARTMENT OF THE NAVY
WASHINGTON, D. C.

Public Property Line



BORING DATA									
BORING NO.	TYPE	DATE	TOP OF HOLE ELEV.	BOTTOM OF HOLE ELEV.	DEPTH IN FEET	BORING NO.	TYPE	DATE	TOP OF HOLE ELEV.
1	A	10/27/50	80.0	41.0	39.0	27	B	10/27/50	80.0
2	B	10/27/50	80.0	41.0	39.0	28	A	10/27/50	80.0
3	B	10/27/50	80.0	41.0	39.0	29	C	10/27/50	80.0
4	B	10/27/50	80.0	41.0	39.0	30	A	10/27/50	80.0
5	A	10/27/50	80.0	41.0	39.0	31	A	10/27/50	80.0
6	A	10/27/50	80.0	41.0	39.0	32	A	10/27/50	80.0
7	A	10/27/50	80.0	41.0	39.0	33	A	10/27/50	80.0
8	A	10/27/50	80.0	41.0	39.0	34	A	10/27/50	80.0
9	A	10/27/50	80.0	41.0	39.0	35	A	10/27/50	80.0
10	A	10/27/50	80.0	41.0	39.0	36	A	10/27/50	80.0
11	A	10/27/50	80.0	41.0	39.0	37	A	10/27/50	80.0
12	A	10/27/50	80.0	41.0	39.0	38	A	10/27/50	80.0
13	A	10/27/50	80.0	41.0	39.0	39	A	10/27/50	80.0
14	A	10/27/50	80.0	41.0	39.0	40	A	10/27/50	80.0
15	A	10/27/50	80.0	41.0	39.0	41	A	10/27/50	80.0
16	A	10/27/50	80.0	41.0	39.0	42	A	10/27/50	80.0
17	A	10/27/50	80.0	41.0	39.0	43	A	10/27/50	80.0
18	A	10/27/50	80.0	41.0	39.0	44	A	10/27/50	80.0
19	A	10/27/50	80.0	41.0	39.0	45	A	10/27/50	80.0
20	C	10/27/50	80.0	41.0	39.0	46	A	10/27/50	80.0
21	B	10/27/50	80.0	41.0	39.0	47	A	10/27/50	80.0
22	A	10/27/50	80.0	41.0	39.0	48	A	10/27/50	80.0
23	A	10/27/50	80.0	41.0	39.0	49	A	10/27/50	80.0
24	A	10/27/50	80.0	41.0	39.0	50	A	10/27/50	80.0
25	A	10/27/50	80.0	41.0	39.0	51	A	10/27/50	80.0
26	A	10/27/50	80.0	41.0	39.0	52	A	10/27/50	80.0
27	A	10/27/50	80.0	41.0	39.0	53	A	10/27/50	80.0
28	A	10/27/50	80.0	41.0	39.0	54	A	10/27/50	80.0
29	A	10/27/50	80.0	41.0	39.0	55	A	10/27/50	80.0
30	A	10/27/50	80.0	41.0	39.0	56	A	10/27/50	80.0
31	A	10/27/50	80.0	41.0	39.0	57	A	10/27/50	80.0
32	A	10/27/50	80.0	41.0	39.0	58	A	10/27/50	80.0
33	A	10/27/50	80.0	41.0	39.0	59	A	10/27/50	80.0
34	A	10/27/50	80.0	41.0	39.0	60	A	10/27/50	80.0
35	A	10/27/50	80.0	41.0	39.0	61	A	10/27/50	80.0
36	A	10/27/50	80.0	41.0	39.0	62	A	10/27/50	80.0
37	C	10/27/50	80.0	41.0	39.0	63	A	10/27/50	80.0
38	A	10/27/50	80.0	41.0	39.0	64	A	10/27/50	80.0
39	A	10/27/50	80.0	41.0	39.0	65	A	10/27/50	80.0
40	B	10/27/50	80.0	41.0	39.0	66	A	10/27/50	80.0

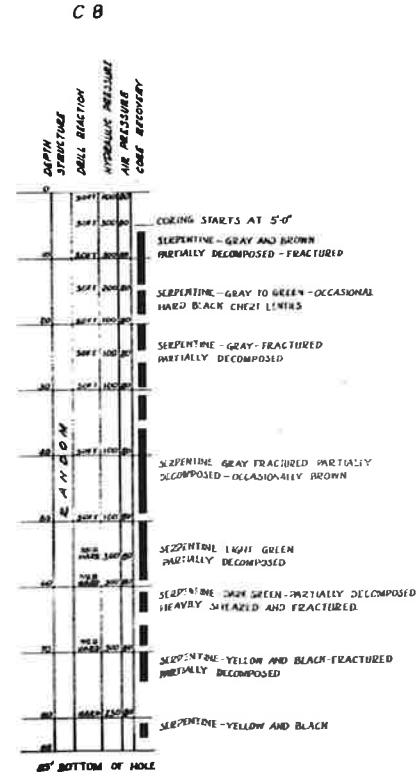
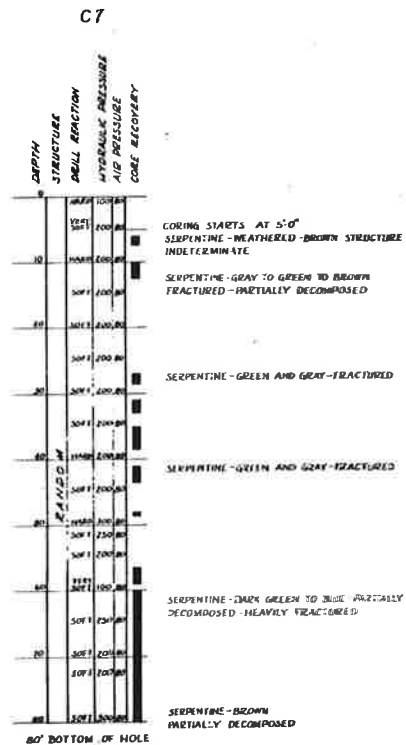
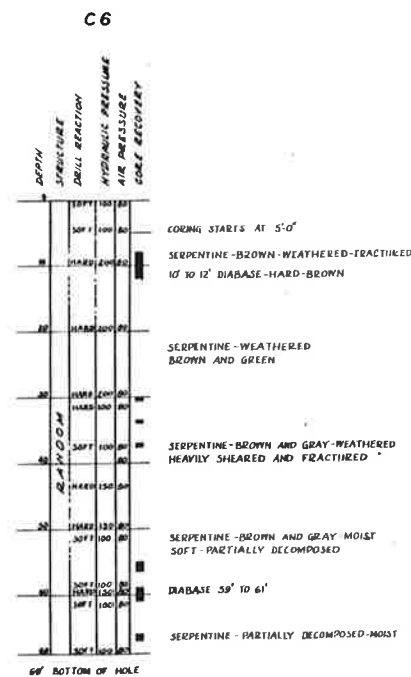
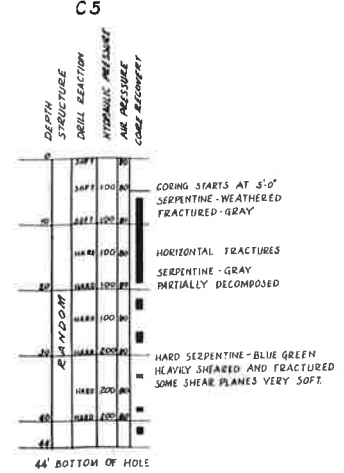
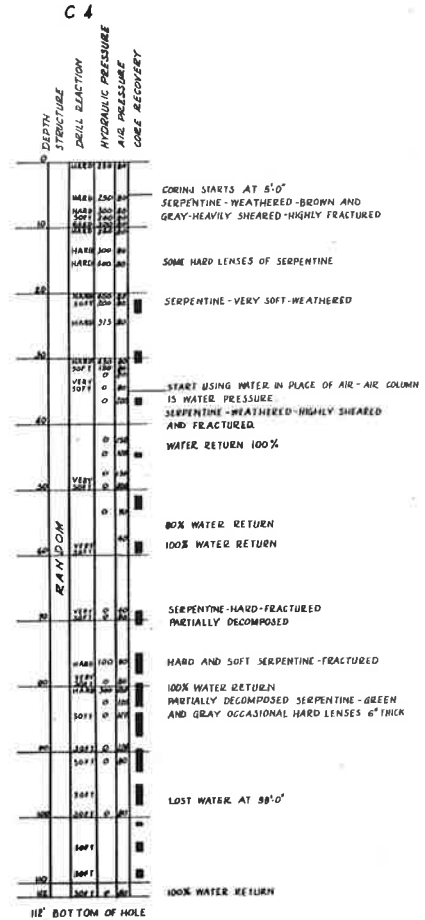
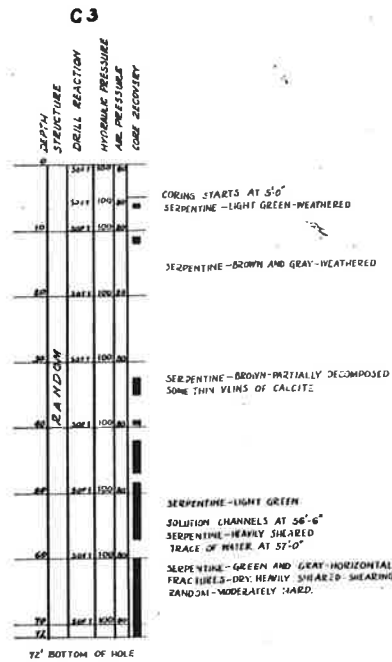
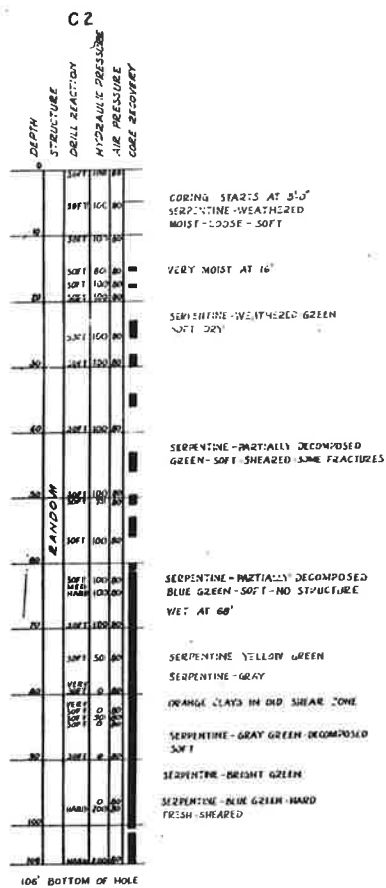
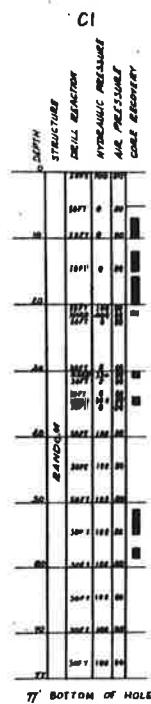
- A INDICATES 2" BORING
- B INDICATES 1" PROBING
- C INDICATES 2 1/2" BORING
- D INDICATES 2" PROBING

LEGEND
SHORE LINE (DEC 20, 1950)
ELEV. M.S.D. SHIPYARD DATUM
SHIPYARD PROPERTY LINE
DATUM 100.0 FT. MLLW USC § 65.

DESIGNED J. F. P.	DEPARTMENT OF THE NAVY	BUREAU OF YARDS & DOCK
DRAWN J. F. P.	DISTRICT PUBLIC WORKS OFFICE	12TH ST. SAN FRANCISCO, CALIF.
CHECKED J. F. P.	PORTER, URQUHART, McCREARY & O'BRIEN	CONSULTING ENGINEERS
SUBMITTED J. F. P.	1100 HOWARD STREET	SAN FRANCISCO, CALIF.
DIV. DES. P. & S. DIV.	SAN FRANCISCO NAVAL SHIPYARD	SAN FRANCISCO, CALIFORNIA
DPWD DWS NO. B-	ADVANCE PLANNING	
	LAND EXCAVATION AND FILL	
	(1ST INCREMENT)	
	B. B. D. PROJECT 12 ND - 642	
	SOIL BORING LOCATION PLAN	
	APPROVED	DATE
	DPWD FOR CHIEF OF BUREAU	
SATISFACTORY TO	SCALE	S.S.
SIGNATURE	SHEET 21 OF 16	NO. 9325
DATE	TITLE	Y. B. D. DRAWING NO.



Public Property Line



NOTE:
ALL CORE FROM THESE HOLES WERE 3 1/2" IN DIAMETER CUT BY A 6" SAWTOOTH TYPE BIT ON A CORE BARREL. CAPABLE OF RECEIVING 5'0" OF CONTINUOUS CORE. ALL HOLES WERE DRILLED WITH AIR EXCEPT WHEN AIR FAILED TO REMOVE SUFFICIENT CUTTINGS OR WHEN EXCESSIVE SAVING IN THE HOLE OCCURRED. WHEN WATER WAS USED SUFFICIENT BENZONITE WAS USED TO RETAIN THE HOLE AND TO REMOVE CUTTINGS, AS IN HOLE C4. IT WAS FOUND THAT IN THE SERPENTINE CORING WITH AIR WAS THE BEST MEANS OF OBTAINING RECOVERY.

EXPLANATION OF COLUMNS
STRUCTURE—GEOLOGIC
DRILL REACTION—THE WAY MATERIAL DRILLED, VERY SLOWLY OR SLOW FOR HARD ROCK, VERY FAST OR FAST FOR SOFT ROCK.
HYDRAULIC PRESSURE—THE HYDRAULIC PRESSURE AS APPLIED ON THE BIT AS IT DRILLED.
AIR PRESSURE—THE AMOUNT OF AIR REQUIRED TO BLOW DRILL CUTTINGS FROM HOLE.
CORE RECOVERY—PRESENTED IN GRAPHIC FORM AS SOLID COLUMNS.

DESIGNED E.A.H.		CHECKED J.P.R.		SUBMITTED		DATE		APPROVED		DATE	
DRUM		P.B.O. OFF.		DATE		DATE		DATE		DATE	
BUREAU OF YARDS & DOCKS		DISTRICT PUBLIC WORKS OFFICE		PORTER, URQUHART, McCREARY & O'BRIEN		CONSULTING ENGINEERS		SAN FRANCISCO, CALIF.		SAN FRANCISCO, CALIF.	
SAN FRANCISCO MARINE SHIPYARD		12TH NO. SAN BRUNO, CALIF.		ADVANCE PLANNING		LAND EXCAVATION AND FILL		(1 ST. INCREMENT)		S.S.D.S. PROJECT 12 NO. - 688	
CORE BORING LOGS		SHEET 48 OF 50		NO. 5329		Y.B.D. DRAWING NO.					